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## FURTHER STUDIES ON THE PLATYPEZIDÆ.

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Since publishing a "Revision of the Species of *Agathomyia*" (*PSYCHE*, Vol. 17, p. 7, February, 1910) material has accumulated which I have put aside year after year, hoping that in time I should have sufficient material to show satisfactorily the positive relation of the sexes of what are probably the male and female of the same species. The notes appended to the following description will show the difficulties attending this work, the results of which, after six seasons of careful collecting, being rather discouraging. It is therefore with great misgivings that I name some of the described forms, but by so doing, if synonyms should arise, they can be more clearly and readily relegated to their proper standing, than by referring them doubtfully to described species.

### *Agathomyia* Verrill.

#### *Table of Species*

- |  |                          |
|--|--------------------------|
| 1. Thorax and abdomen fulvous . . . . .  | 2                        |
| Thorax and abdomen largely black . . . . .   | 4                        |
| Thorax and abdomen cinereus (females) . . . . .  | 8                        |
| 2. Without black on the abdomen, ♀ (Me., N. H.) . . . . .  | <i>fulva</i> Johns.      |
| With black on the abdomen . . . . .  | 3                        |
| 3. The last two segments of the abdomen and halteres black, ♂<br>(N. Y.) . . . . .                   | <i>perplexa</i> sp. nov. |
| The last segment of the abdomen, pleura and metanotum<br>black; halteres yellow, ♂ (Mass.) . . . . . | <i>dubia</i> sp. nov.    |
| 4. Abdomen broadly banded with yellow . . . . .  | 5                        |
| Abdomen not banded with yellow . . . . .   | 7                        |

5. Scutellum yellow, ♂, ♀ (N. H., Vt., Mass., R. I.) *pulchella* Johns.  
Scutellum black. . . . . 6
6. Posterior metatarsi broad, oblong, ♂ (N. Y., Me.)  
*vanduzeei* sp. nov.  
Posterior metatarsi broad, ovate and truncate, ♂ (N. H.,  
N. Y.) . . . . . *cushmani* sp. nov.
7. Thorax and abdomen both maculated with greenish white,  
halteres black (N. H., Mass., N. Y., N. J., Pa., Kan.)  
*notata* Loew  
Thorax only maculated with greenish white, halteres yellow  
(Pa., D. C.) . . . . . *divergens* Loew  
Thorax and abdomen without maculations, tip of the abdomen  
in the female cinereous, knobs of the halteres black (N. H.,  
Mass.) . . . . . *talpula* Loew
8. Abdomen grayish on a yellow ground, with broad black tri-  
angles. . . . . *vanduzeei* sp. nov.  
Abdomen grayish on a blackish ground (Mass.)  
var.? *obscura* var. nov.

#### Agathomyia dubia sp. nov.

♂. Head black, mouth parts and antennæ yellow, aristæ brown. Thorax and scutellum yellow, pleura and metanotum black, pronotum with three rows of black hairs, the outer rows curving towards the humeri, a post-humeral, four notopleural, two supra-alar and one dorsocentral bristles, scutellum with three small lateral and two large apical bristles. Abdomen fulvous, the terminal segment and genitalia black. Legs light yellow, posterior metatarsi not enlarged, scarcely as wide as the tibiæ. Halteres fulvous. Wing hyaline with a long pale yellow stigma. Length, 3 mm.

One specimen, Austen's Brook, Chester, Mass., August 4, 1911. Type in the collection of the Boston Society of Natural History. I have long hesitated in describing this, and since collecting it have made four additional trips to the locality, hoping thereby to get more material. That it may prove to be the male of *A. fulva* is not unlikely, but the black pleura and terminal segment of the abdomen make it very doubtful, while the presence of another equally closely related form leaves only the one alternative to avoid confusion.

*Agathomyia perplexa* sp. nov.

♂. Head black, mouth parts and base of the antennæ yellowish. Third joint and arista blackish. Thorax: dorsum and pleura fulvous, with rows of hairs and bristles similar to those of *A. dubia*, scutellum fulvous with four large marginal bristles. Abdomen fulvous, the last two segments and genitalia black. Legs yellow, the posterior metatarsi enlarged, slightly wider than the tibiæ, under side of the anterior and posterior femora with a large black bristle near the base. Halteres dark brownish-black. Wings hyaline, stigma very pale, a large black bristle near the base of the costa. Length, 3 mm.

One specimen, Elma, Erie County, N. Y., August 24, 1913, collected by Mr. M. C. VanDuzee. Type in the author's collection.

In general appearance this could also be referred to as the male of *A. fulva*, but the color of the antennæ, halteres and the last two segments of the abdomen would seem to separate it from that species.

*Agathomyia fulva* Johnson.

A female identical with the type from Capens, Me., was collected in Tuckerman's Ravine, Mt. Washington, N. H., July 21, 1915.

*Agathomyia vanduzeei* sp. nov.

♂. Face black, grayish pruinose, mouth parts and antennæ yellowish, third joint and arista black, eyes similar to the following species. Thorax with a dorsal line and the central area behind the transverse suture black, the rest of the dorsum, pleura and scutellum brownish. Abdomen, first segment brown, second and third yellow except for a dorsal spot of brown, the rest of the segments velvety black. Halteres dark brown, base of the stalk yellow. Legs yellow, tip, of the posterior femora brown above, posterior metatarsi slightly dilated, apex rounded (Fig. 2). Wings hyaline. Length, 3.5 mm.

♀. Face and front black, grayish pruinose, a bristle on each side of the front just below the ocelli and a vertical bristle on each side of the ocelli, two small ocellar bristles and a row of small bristles on the posterior orbits. Thorax light gray, with three conspicuous rows of black hairs, the middle row abbreviated poster-

iorly, the others curved outward in front to the humeri; the hairs become gradually larger and end with a large bristle in front of the scutellum, the latter with four large marginal bristles, humeri, postalar callus and scutellum yellow. Abdomen yellowish, grayish pruinose, with wide triangular markings of black on the posterior margins of the second, third and fourth segments, fifth and sixth with a narrow dorsal line of black. Halteres yellow, posterior metatarsi not dilated, in other respects resembling the male.

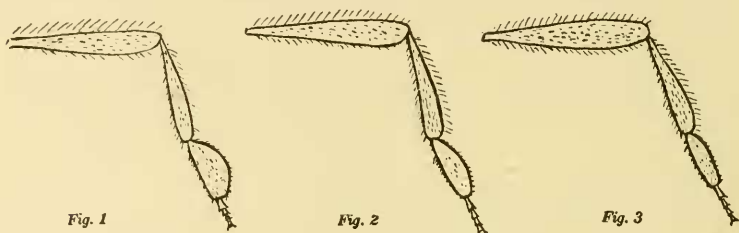


Fig. 1. Portions of hind legs of *Agathomyia* and *Callimya*. Fig. 1, *A. cushmani* sp. nov.; Fig. 2, *A. vanduzeei* sp. nov.; Fig. 3, *C. velutina* sp. nov.

Holotype and allotype, Niagara Falls, N. Y., October 6, 1912 (M. C. VanDuzee), in the author's collection. Paratypes, two females, Colden, N. Y., September 7, 1913, in the collection of Mr. M. C. VanDuzee. One male, Liberty, Me., September 9 (J. A. Cushman) in the collection of the Boston Society of Natural History. The latter measures 4 mm. and has a dorsal stripe of black on the second and third abdominal segments. An imperfect female collected at Hammond's Pond, near Brookline, Mass., September 25, 1913, I am referring doubtfully to this species under the varietal name *obscura*. It lacks the yellow humeri and scutellum, the antennæ are entirely black, and the third joint more attenuated. The abdomen is injured so that the markings are obliterated but no yellow is apparent. Length, 3.5 mm. A number of trips have been made to try and secure more specimens of this interesting form, but in vain.

#### *Agathomyia cushmani* sp. nov.

♂. Face black, grayish pruinose, mouth parts and antennæ yellow, third joint and arista dark brown, eyes with a deep median transverse depression, facets of the lower half about one half the

size of those of the upper half. Thorax black with three narrow pruinose stripes, bearing rows of fine hairs, the outer rows curving towards the brownish humeri. Scutellum yellowish, pleura black, grayish pruinose. Abdomen, first, second and third segments yellow, a large dorsal spot on the posterior of the third and the remaining segments velvety black. Legs yellow, all of the tarsi and the tips of the posterior femora and tibiæ brownish, posterior metatarsi broadly dilated and truncate, the tarsi short (Fig. 1). Halteres yellow, the knobs brownish. Wings hyaline. Length, 4 mm.

Holotype collected by Dr. J. A. Cushman, on Mt. Passaconaway, N. H., 3,800 feet, September 12, 1912, in the collection of the Boston Society of Natural History. Paratype, Boston, Erie County, N. Y., September 5, 1911 (M. C. VanDuzee), in the author's collection.

This species resembles *A. vanduzeei* but is readily separated by its broader and somewhat truncated metatarsi.

#### *Agathomyia pulchella* Johnson.

Since 1910 this species has been collected at Chester, Mass., August 7, 1912; Bretton Woods, June 28, 1913; Mt. Washington carriage road below the second mile post, elevation about 2,400 feet, July 24, 1915, and along the Osgood Trail, near the Glen House, N. H., July 20, 1915.

#### *Callimya* Meigen.

##### *Table of Species*

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| 1. Abdomen entirely velvety black, ♂ (N. H., Mass., Ont.) . . .                                    |                          |
|  | <i>velutina</i> sp. nov. |
| Abdomen broadly banded with yellow . . . . .   | 2                        |
| 2. Abdomen without silvery gray spots, ♂ (N. M., N. H., Me.)                                       |                          |
|  | <i>venusta</i> Snow.     |
| Abdomen with silvery gray spots . . . . .  | 3                        |
| 3. Sides of the 1st, 2nd, and 5th segments silvery gray, ♀ . . .                                   |                          |
|  | <i>venusta</i> Snow.     |
| Sides of the 1st, 2nd, 3rd and 4th and the entire 6th segment<br>silvery gray, ♀ (N. H.) . . . . . | <i>proxima</i> sp. nov.  |

*Callimya velutina* sp. nov.

♂. Face dull grayish black, antennæ black. Thorax, scutellum and abdomen deep velvety black, pleura grayish black. Legs black, anterior and middle tibiæ and tarsi brown, posterior tibiæ and metatarsi somewhat enlarged (Fig. 3). Halteres fulvous, stems brown. Wings hyaline. Length, 4 mm.

This species was collected by the writer along the Mt. Washington carriage road between 2,500 and 3,500 feet, also on the Raymond Path at similar elevations, July 6 to 8, 1914, and July 24 to 28, 1915; at Bretton Woods, N. H., June 28, 1913, and at Chester, Mass., August 5, 1914. A specimen was also received from Mr. M. C. VanDuzee, collected at Brule Lake, Ontario, August 3, 1911. The Chester specimen measures 3.25 mm. and the Ontario specimen, which is about the same size, has the abdomen somewhat shiny, probably owing to its having become damp or greasy.

Holotype (Mt. Washington, July 24) and four paratypes in the collection of the Boston Society of Natural History. One paratype in the Museum of Comparative Zoölogy, one in the collection of Mr. VanDuzee and one in the author's collection.

*Callimya proxima* sp. nov.

♀. Front and face black grayish pruinose, antennæ black. Thorax and scutellum black, humeri, a large spot in front of the scutellum and the metanotum grayish pruinose. Abdomen, posterior half of the fifth and all of the second segment except a narrow dorsal line, yellow, the remaining segments black, a large spot on the sides of the second, third, fourth, and all of the sixth segment pearl gray. Halteres yellow. Legs including the coxæ yellow, tips of the anterior and middle tarsi and posterior femora and the entire posterior tibiæ and tarsi black. Wings hyaline. Length, 3 mm.

Two specimens collected on the Mt. Washington carriage road between the two and three mile post, elevation about 3,000 feet, July 16, 1915.

That this may prove to be the female of *C. velutina* is possible, but the bright yellow segments of the abdomen and the legs, which in *C. venusta*, a closely related species, are the same in both sexes, seems to preclude the placing of the two together.

**Callimyia venusta** Snow.

A male and female of this species previously recorded from Shackford Head, near Eastport, Me., was collected along the Mt. Washington carriage road, above the two mile post, elevation about 3,000 feet, July 16, 1915.

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**TWO NEW TEXAN PARAJULI.**

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The type specimens of the new species of *Parajulus* here described were collected by J. D. Mitchell at Victoria, Tex., from where they were taken to the field laboratory of the United States Bureau of Entomology at West Lafayette, Ind., and there kept alive for some time. They were sent to me for determination by Mr. W. R. Walton of the bureau mentioned. Isolated descriptions of these two forms are here published in order that the names may be available for early use.

***Parajulus texanus* sp. nov.**

General color light yellowish brown. A dark median dorsal longitudinal line which is dark brown anteriorly and becomes black posteriorly. The usual series of black dots along each side over the repugnatorial glands on all excepting the first few segments; the dots small, angulate. About each segment a narrow dark annulus or line which fades out on the lower part of each side. A series of light brown spots much lighter and less conspicuous than those of the repugnatorial series occur along each side above the legs excepting on the most anterior and most posterior segments. Vertex of head and the antennæ dusky or blackish; the head below level of eyes pale.

Sulcus across vertex of head coarse; extending forwards to a deep transverse sulcus between inner angles of eyes; the transverse sulcus bent back angularly at middle.

Eye patch black; of moderate size; triangular, but with sides convex and the anterior angle truncate. Ocelli on each side in seven subvertical series in the most caudal of which there are ten